



REPUBLIC OF SUDAN

**Practical  
ACTION**

**Consultancy Service to Identify ,Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation )Wadi El Ku in El Fasher Locality -North Darfur State**

**DRAWINGS**

**Rehabilitation of Azagarfa Dam(Water Spreading)**

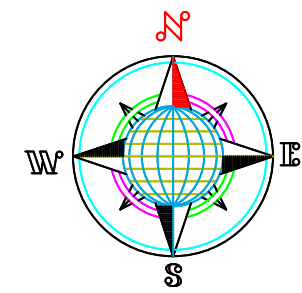
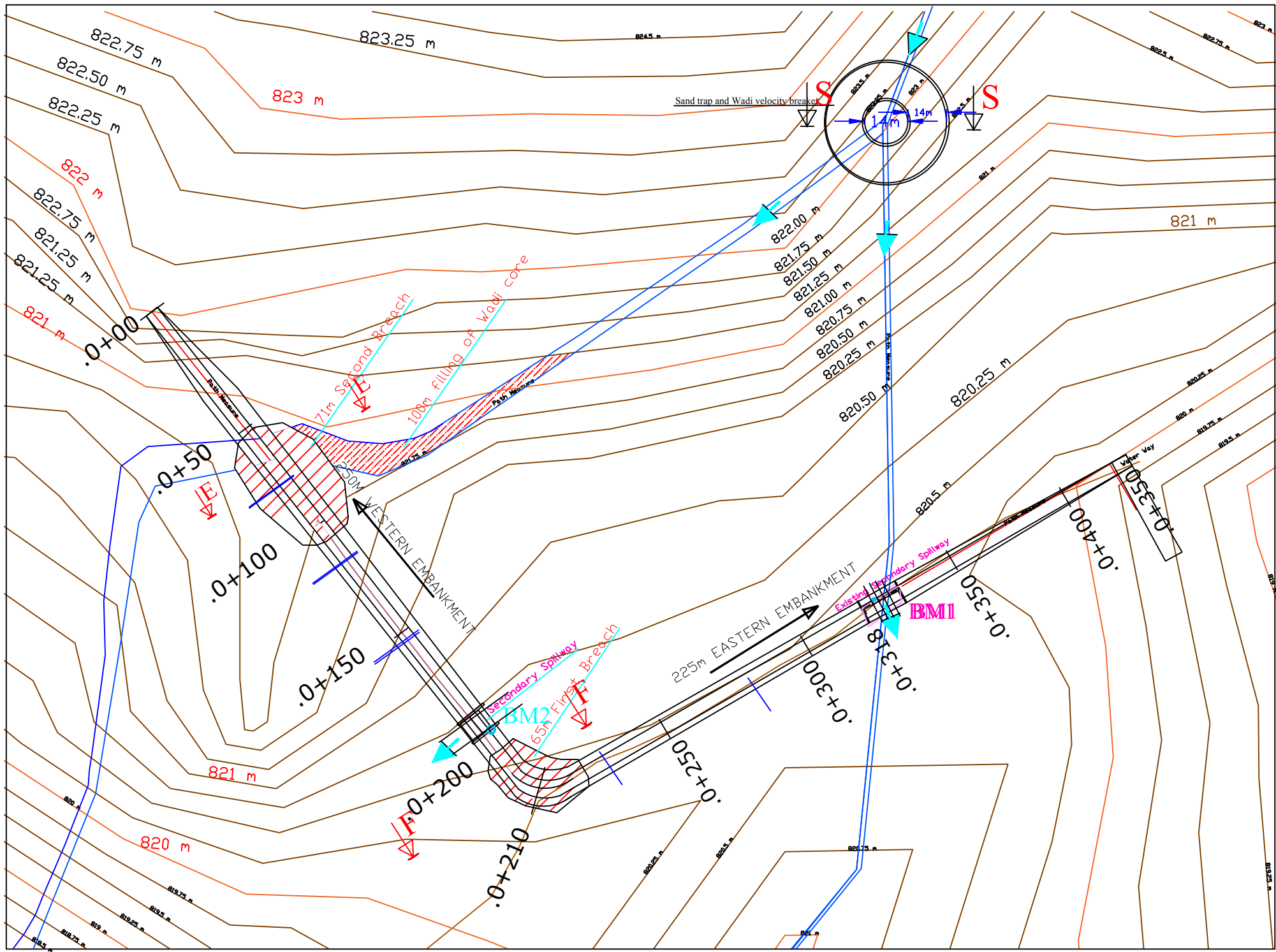
**CONSULTANT :-**



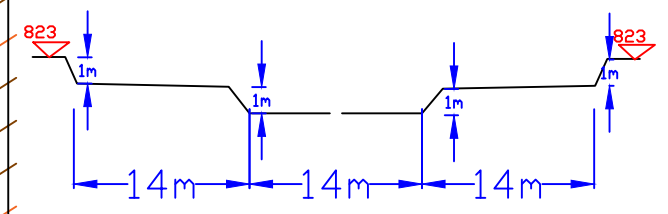
**DAMS ENGINEERING ENTERPRISES**

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[dams.dee2020@gmail.com](mailto:dams.dee2020@gmail.com) ,[hashimna59@gmail.com](mailto:hashimna59@gmail.com)  
Arkawet-48Africa Street-Building258Khartoum,SUDAN

November 2021



Sand trap and Wadi velocity breaker  
Section S-S



**NOTE** COORDINATS AND ELEVATION OF BENCH MARKS

BM.NAME	EASTING	NORTHING	ELEVATION
BM1	324001.066	1535805.547	821.068
BM2	323869.498	1535761.207	822.121

CLIENT



**Practical ACTION**

Consultancy Service to Identify, Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation) Wadi El Ku in El Fasher Locality -North Darfur State

**CONSULTANT**

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REV.	DESCRIPTION	DATE	SIGN.	DRAWING NAME:

**DESIGNED:** Dr.Eng. HASHIM M. HAMID  
**DRAWN:** MSc.Eng. Tasnim H. Mohamed

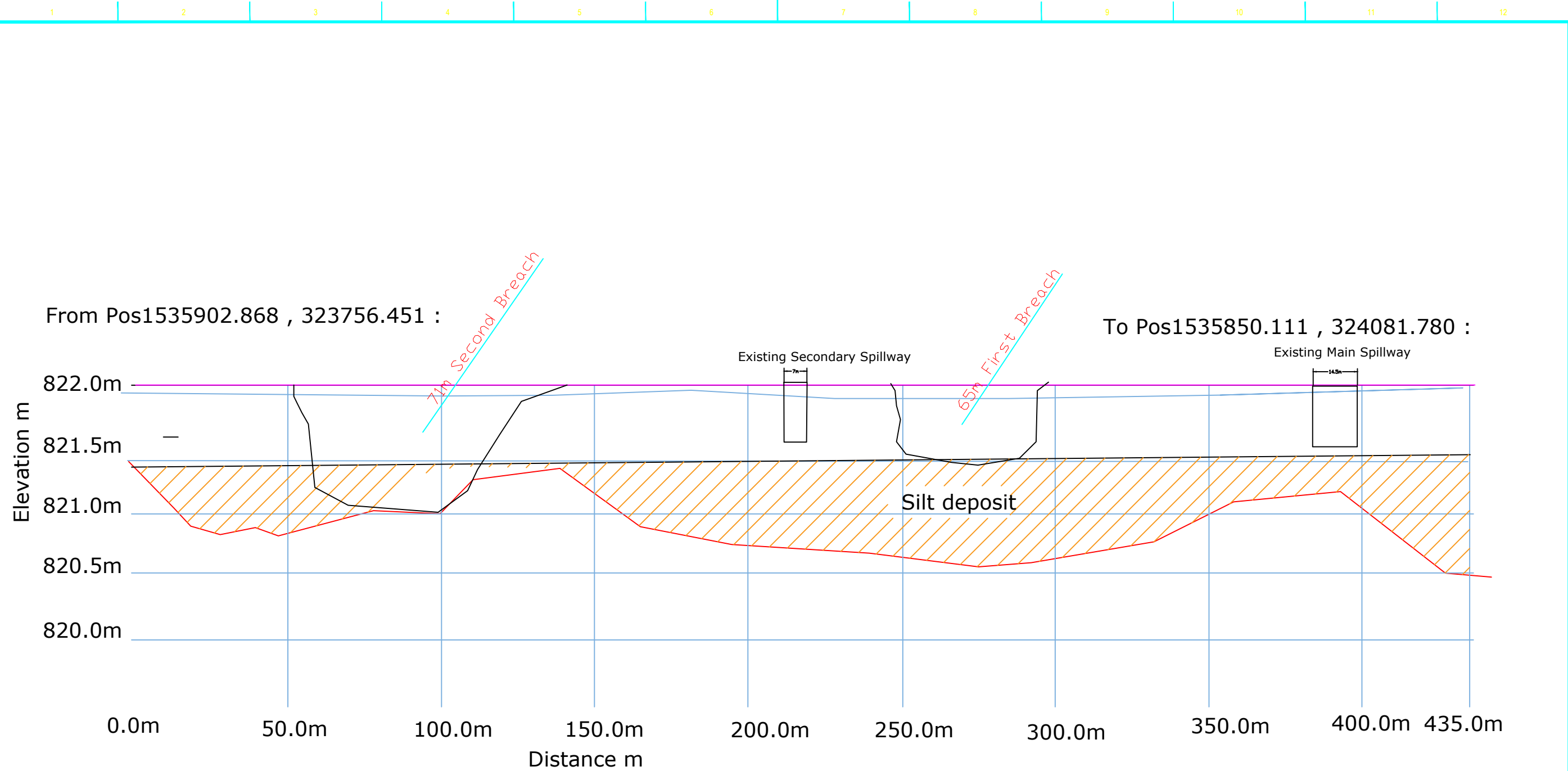
**CHECKED:** Prof.Eng. SIDDIG E. AHMED  
**SURVEYED:** Eng. Ahmed M. Dayer

Azagarfa Rehabilitation Dam  
**CONTRACT No**   **DATE:** December 2021

**SCALE:**  
**DRAWING NO:**

**1**

**CONTOUR MAP AND EXISTING DAM LOCATION**



CLIENT



**Practical ACTION**

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REV.	DESCRIPTION	DATE	SIGN.

DRAWING NAME:

**DAM AXIS PROFILE for Upstream Picture**

DESIGNED:

Dr.Eng. HASHIM M. HAMID

DRAWN:

MSc.Eng .Tasnim H .Mohamed

Azagarfa Rehabilitation Dam

SCALE:

CHECKED:

Prof.Eng. SIDDIG E. AHMED

SURVEYED

Eng .Ahmed M .Dayer

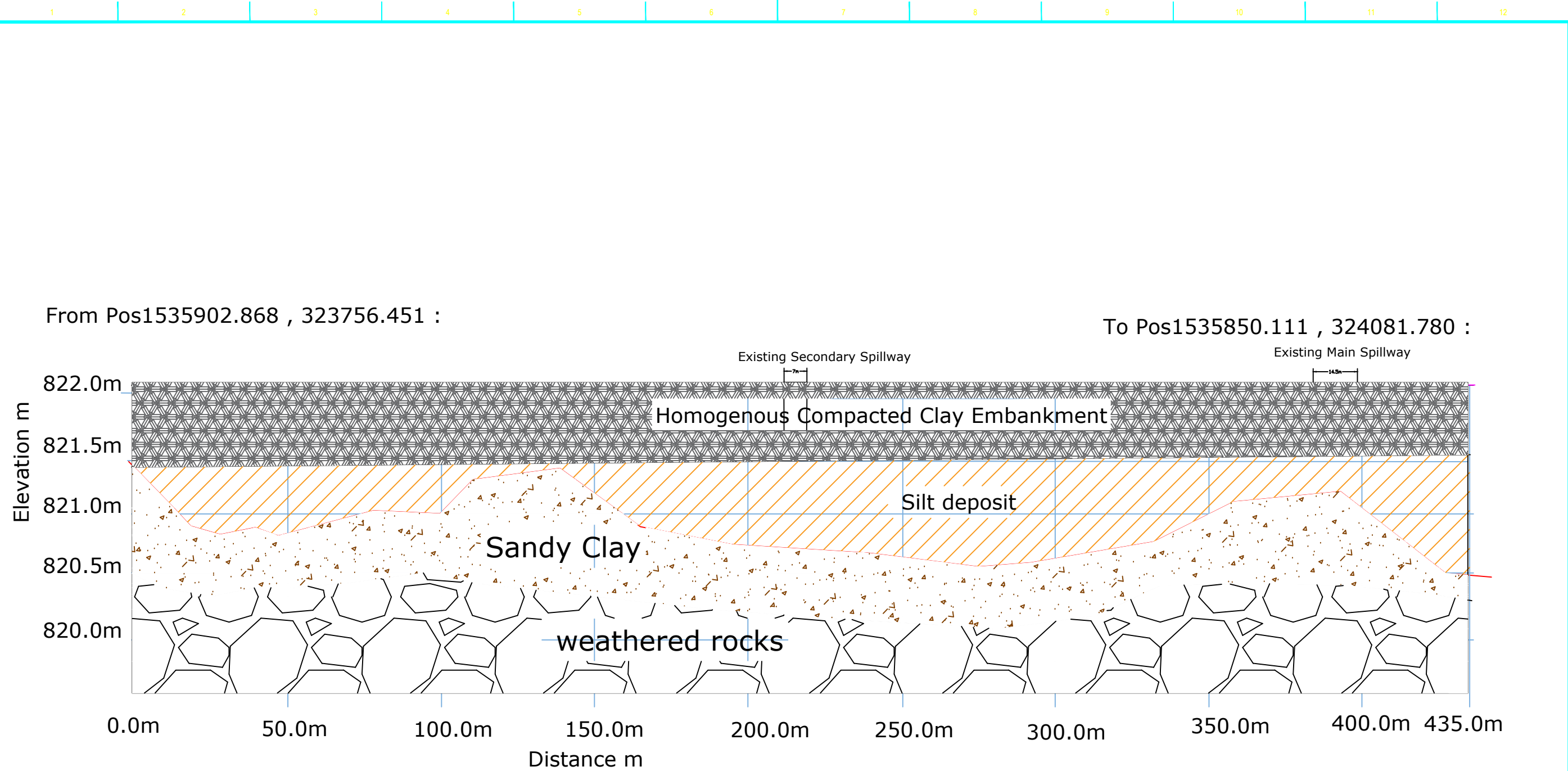
CONTRACT No

DATE:

December 2021

DRAWING NO:

**2**



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**Practical ACTION**

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CONSULTANT



**DAMS ENGINEERING ENTERPRISES**

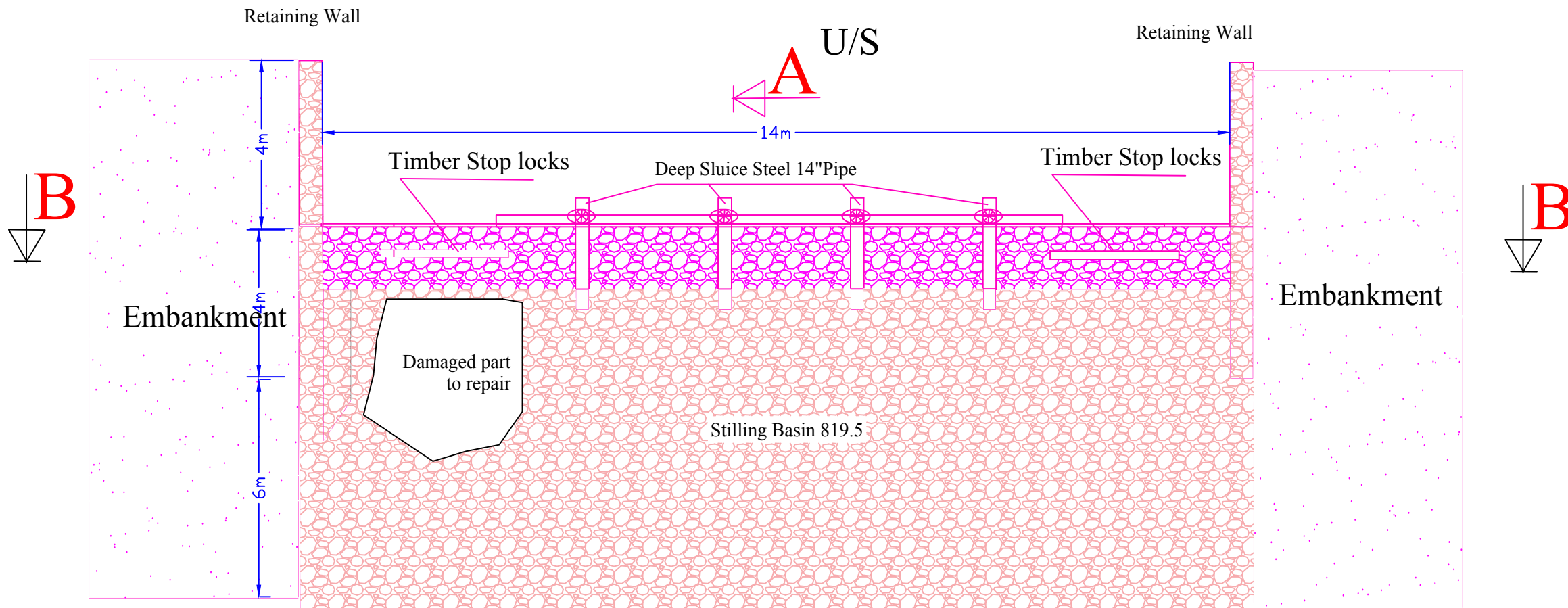
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REV.	DESCRIPTION	DATE	SIGN.

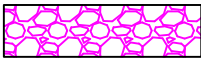

<b>DAM AXIS GEOLOGICAL PROFILE</b>			
DESIGNED: Dr.Eng. HASHIM M. HAMID	DRAWN: MSc.Eng .Tasnim H .Mohamed	Azagarfa Rehabilitation Dam	SCALE:
CHECKED: Prof.Eng. SIDDIG E. AHMED	SURVEYED Eng .Ahmed M .Dayer	CONTRACT No	DATE: December 2021
			<b>3</b>
			DRAWING NO:





# Plan of Masonry Main Spillway at Eastern Embankment Cain 0+318 .



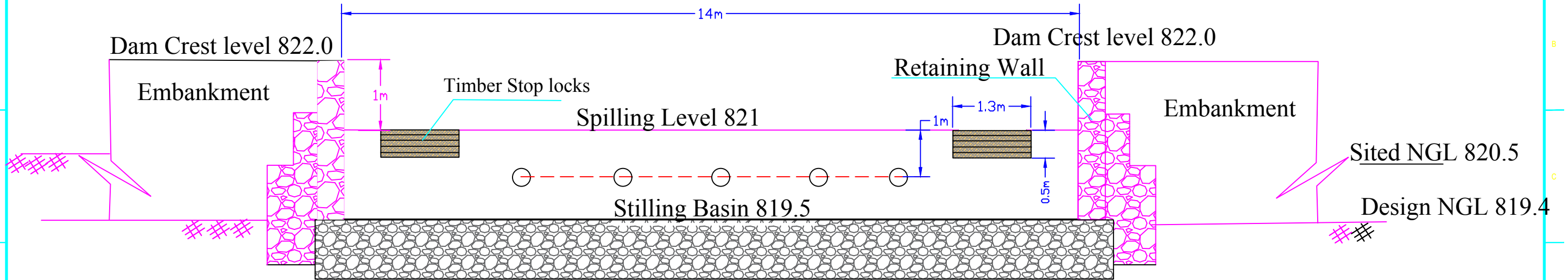
### Note

	Existing Structure
	Proposed new Structure

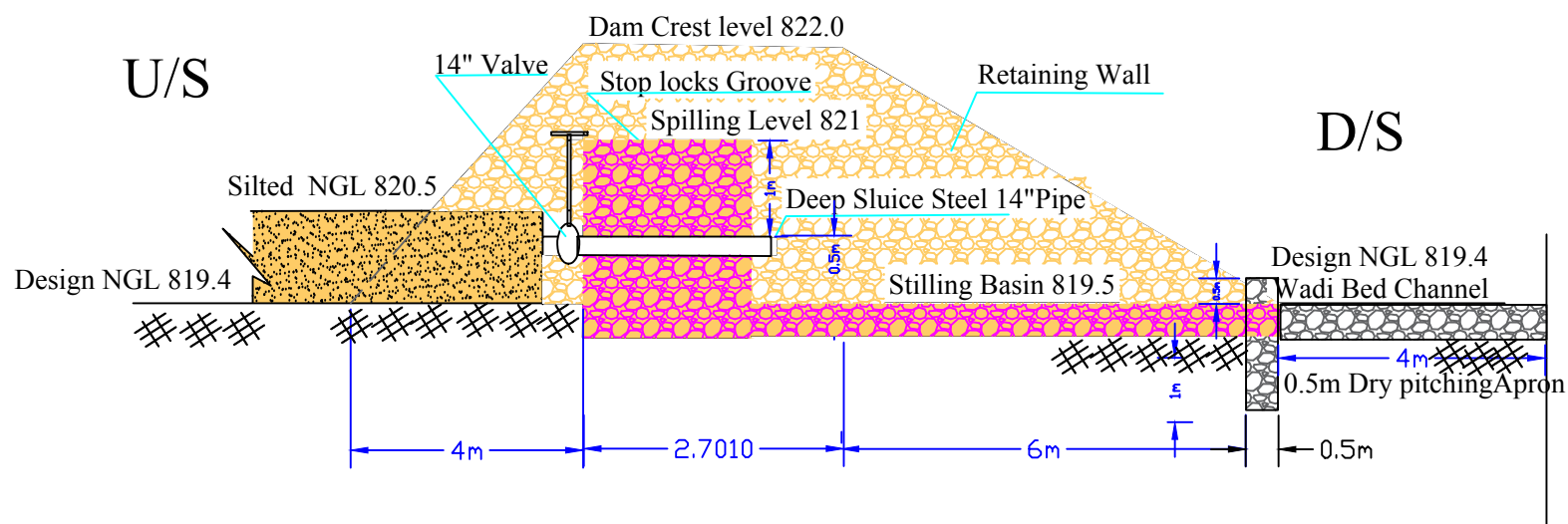
U/S  
D/S

<b>CLIENT</b>  <b>Practical ACTION</b>	Consultancy Service to Identify ,Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation )Wadi El Ku in El Fasher Locality -North Darfur State <b>CONSULTANT</b>  <b>D.E.E. DAMS ENGINEERING ENTERPRISES</b> Mob. ,00249122606797 ,00249912319503 e-mail : dams.dee2020@gmail.com ,hashimna59@gmail.com Arkawet-48Africa Street-Building258Khartoum,SUDAN	REV.	DESCRIPTION	DATE	SIGN.	DRAWING NAME: Plan of Masonry Main Spillway at Eastern Embankment Cain 0+318 .			
						DESIGNED: Dr.Eng. HASHIM M. HAMID	DRAWN: MSc.Eng .Tasnim H .Mohamed	Azagarfa Rehabilitation Dam	SCALE:
					CHECKED: Prof.Eng. SIDDIG E. AHMED	SURVEYED Eng .Ahmed M .Dayer	CONTRACT No	DATE: December 2021	DRAWING NO:

## Cross section B-B of Masonry spillway at Eastern Embankment 0+318



## Cross section A-A of Masonry spillway at Eastern Embankment 0+318



### Note

1. All Dimensions are in millimeters unless otherwise noted.
  2. Mix ratio of Concrete should be 1:2:4.
  3. Mix ratio of Plain Concrete should be 1:3:6.
  4. Steel shall satisfy the requirement as per Grade 40 (40,000 psi)
  5. Clear Cover for main reinforcement of Bottom Slab should be 50 mm.
  6. Clear Cover for main reinforcement of Top Slab should be 40 mm.
  7. During casting of Reinforced concrete use concrete vibrator.
  8. Reinforced Concrete Grade 25, (cement 350kg/cu.m minimum)
- Existing Structure  
 Proposed new Structure

CLIENT



**Practical ACTION**

Consultancy Service to Identify, Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation) Wadi El Ku in El Fasher Locality -North Darfur State

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REV.	DESCRIPTION	DATE	SIGN.	DRAWING NAME:
				Section A-A and B-B of Masonry Main Spillway at Eastern Embankment Cain 0+318 .

DESIGNED:	DRAWN:	CONTRACT No	DATE:
Dr.Eng. HASHIM M. HAMID	MSc.Eng. Tasnim H. Mohamed		December 2021
CHECKED:	SURVEYED	DRAWING NO:	
Prof.Eng. SIDDIG E. AHMED	Eng. Ahmed M. Dayer	<b>5</b>	

Section A-A and B-B of Masonry Main Spillway at Eastern Embankment Cain 0+318 .

Azagarfa Rehabilitation Dam

SCALE:

DESIGNED:  
Dr.Eng. HASHIM M. HAMID

DRAWN:  
MSc.Eng. Tasnim H. Mohamed

CHECKED:  
Prof.Eng. SIDDIG E. AHMED

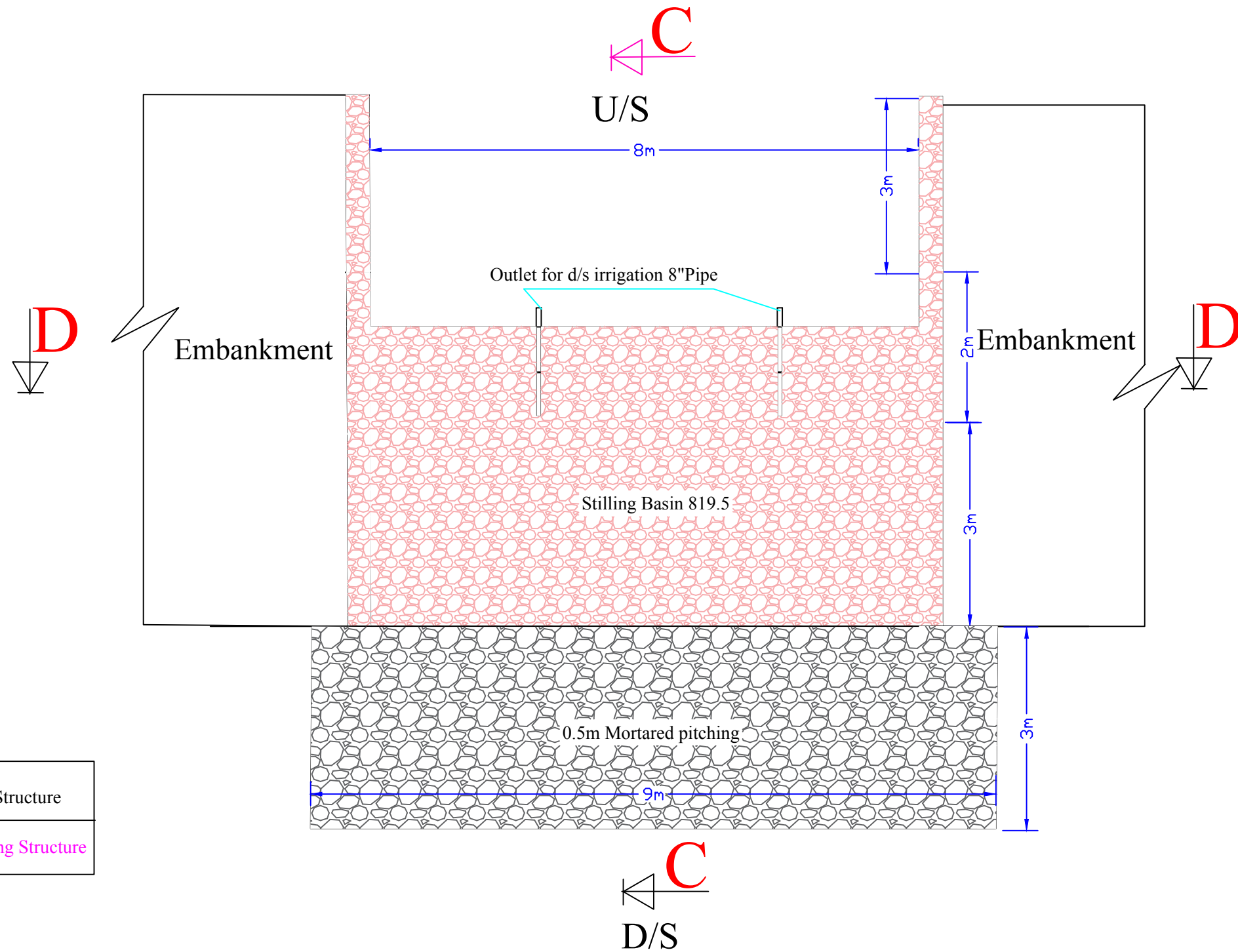
SURVEYED  
Eng. Ahmed M. Dayer


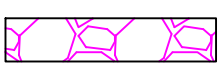
CONTRACT No  
DATE:  
December 2021

DRAWING NO:

**5**

# Plan of Masonry Main Spillway at Western Embankment Cain 0+200 .



	New Structure
	Existing Structure

CLIENT



**Practical ACTION**

Consultancy Service to Identify ,Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation )Wadi El Ku in El Fasher Locality -North Darfur State

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REV.	DESCRIPTION	DATE	SIGN.

DRAWING NAME:

Plan of Masonry **Secondary** Spillway at Western Embankment Cain 0+200 .

DESIGNED:

Dr.Eng. HASHIM M. HAMID

DRAWN:

MSc.Eng .Tasnim H .Mohamed

Azagarfa Rehabilitation Dam

SCALE:

CHECKED:

Prof.Eng. SIDDIG E. AHMED

SURVEYED

Eng .Ahmed M .Dayer

CONTRACT No

DATE:

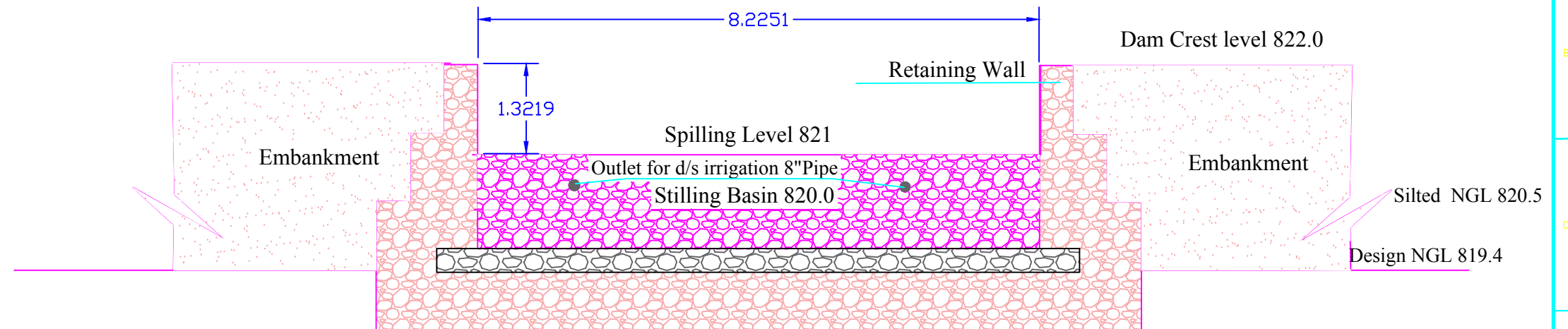
December 2021

DRAWING NO:

**6**



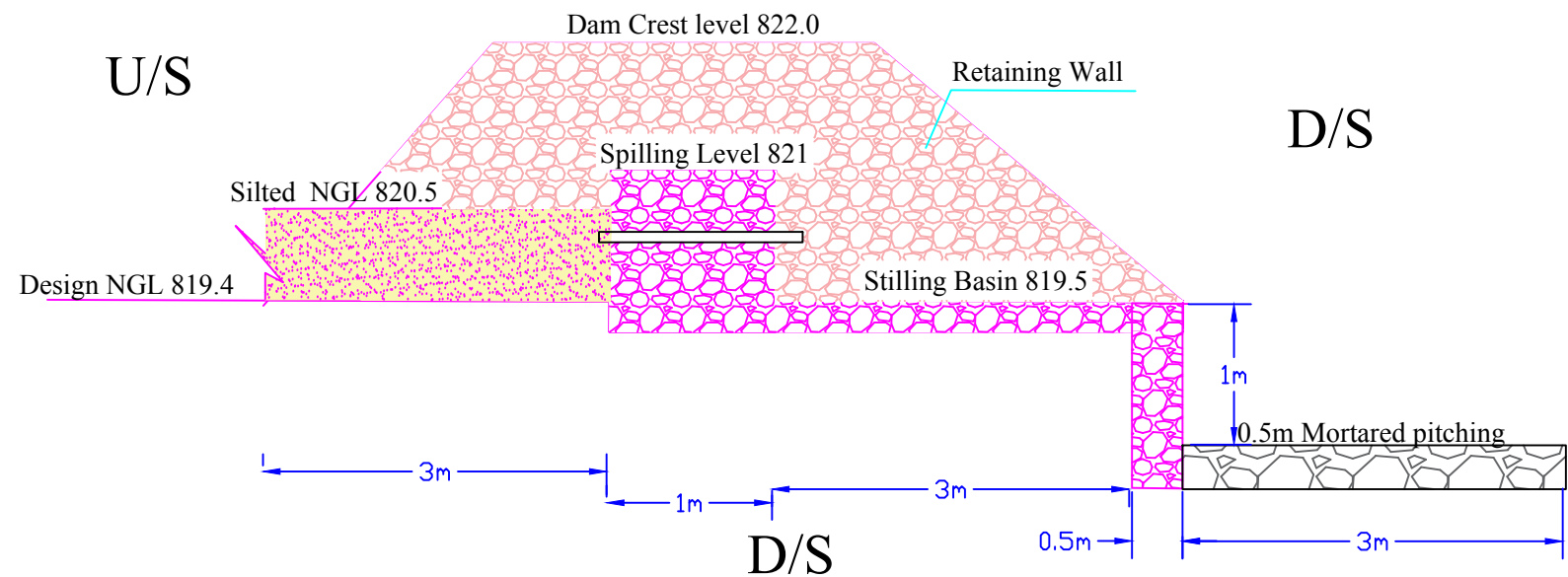
## Cross section D-D of Masonry spillway at Western Embankment 0+200



## Cross section C-C of Masonry spillway at Eastern Embankment 0+200

**Note**

	Existing Structure
	Proposed new Structure

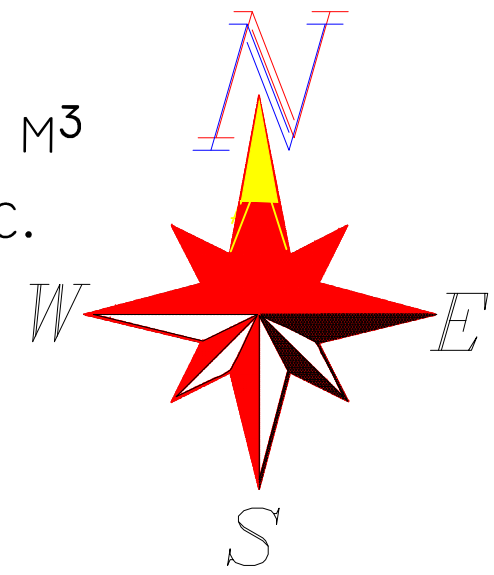


<p>CLIENT</p> <p>Practical ACTION</p>	<p>CONSULTANT</p> <p>D.E.E. DAMS ENGINEERING ENTERPRISES          Mob. ,00249122606797 ,00249912319503 e-mail :          da.ms.dee2020@gmail.com ,hashimna59@gmail.com          Arkaweeet-48Africa Street-Building258Khartoum,SUDAN</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV.</th> <th>DESCRIPTION</th> <th>DATE</th> <th>SIGN.</th> <th>DRAWING NAME:</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td>Section C-C and D-D of Masonry Secondary Spillway at Western Embankment Cain 0+200 .</td> </tr> </tbody> </table>	REV.	DESCRIPTION	DATE	SIGN.	DRAWING NAME:					Section C-C and D-D of Masonry Secondary Spillway at Western Embankment Cain 0+200 .	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DESIGNED:</td> <td>DRAWN:</td> <td rowspan="2" style="text-align: center;">Azagarfa Rehabilitation Dam</td> <td>SCALE:</td> </tr> <tr> <td>Dr.Eng. HASHIM M. HAMID</td> <td>MSc.Eng .Tasnim H .Mohamed</td> <td> </td> </tr> <tr> <td>CHECKED:</td> <td>SURVEYED</td> <td>CONTRACT No</td> <td>DATE:</td> </tr> <tr> <td>Prof.Eng. SIDDIG E. AHMED</td> <td>Eng .Ahmed M .Dayer</td> <td> </td> <td>December 2021</td> </tr> </table>	DESIGNED:	DRAWN:	Azagarfa Rehabilitation Dam	SCALE:	Dr.Eng. HASHIM M. HAMID	MSc.Eng .Tasnim H .Mohamed		CHECKED:	SURVEYED	CONTRACT No	DATE:	Prof.Eng. SIDDIG E. AHMED	Eng .Ahmed M .Dayer		December 2021	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>DRAWING NO:</td> <td style="font-size: 2em; font-weight: bold;">7</td> </tr> </table>	DRAWING NO:	7
REV.	DESCRIPTION	DATE	SIGN.	DRAWING NAME:																											
				Section C-C and D-D of Masonry Secondary Spillway at Western Embankment Cain 0+200 .																											
DESIGNED:	DRAWN:	Azagarfa Rehabilitation Dam	SCALE:																												
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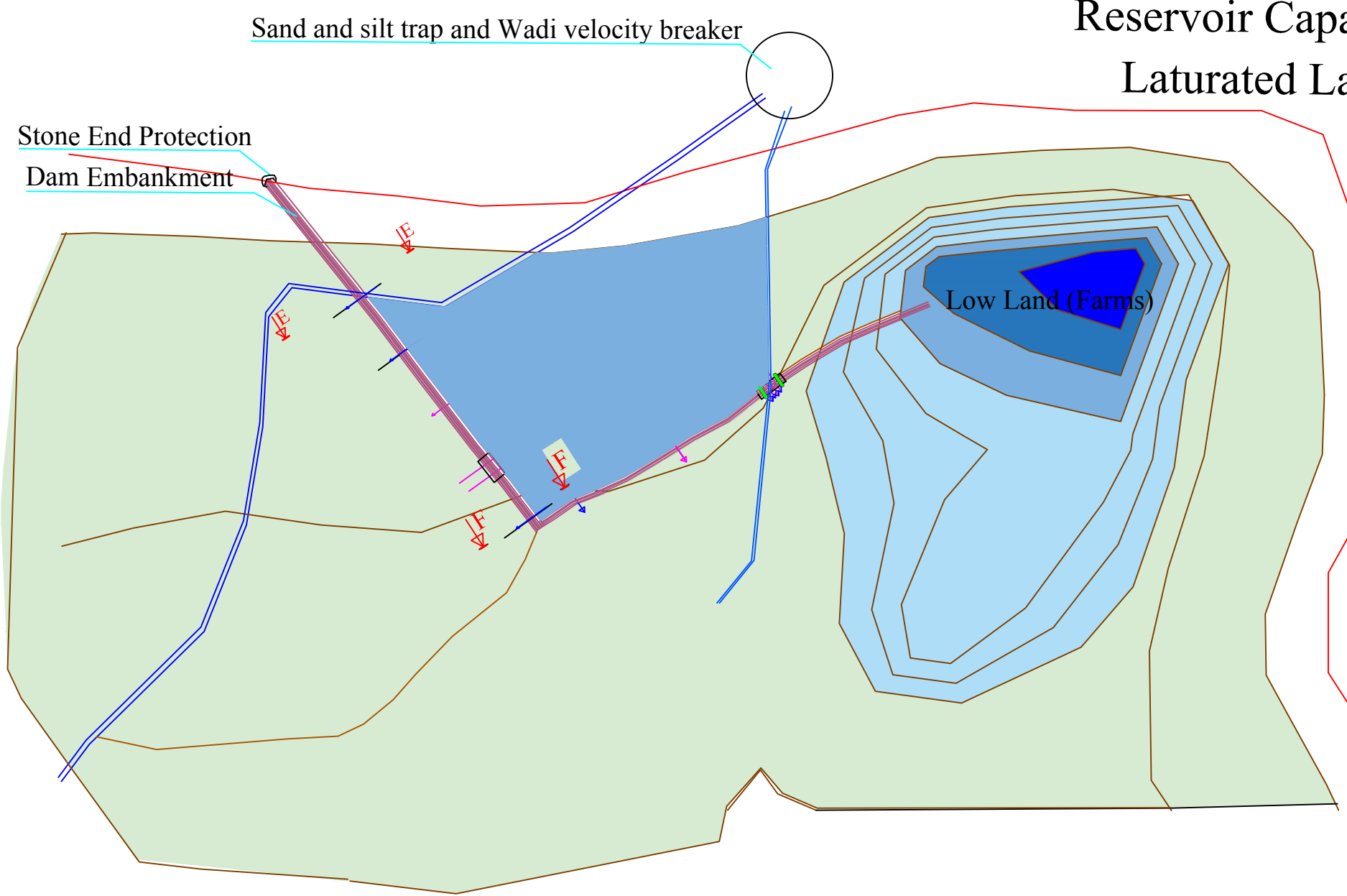
Upstream

Reservoir Capacity 74,300 M<sup>3</sup>  
 Laturated Land 18.5 HEC.





Note

-  Dam earth embankment
-  Timber Stop locks
-  Irrigation outlet existing
-  Irrigation outlet new
-  Stream
-  Dam crest contour level
-  Contour lines
-  Irrigated / saturated land

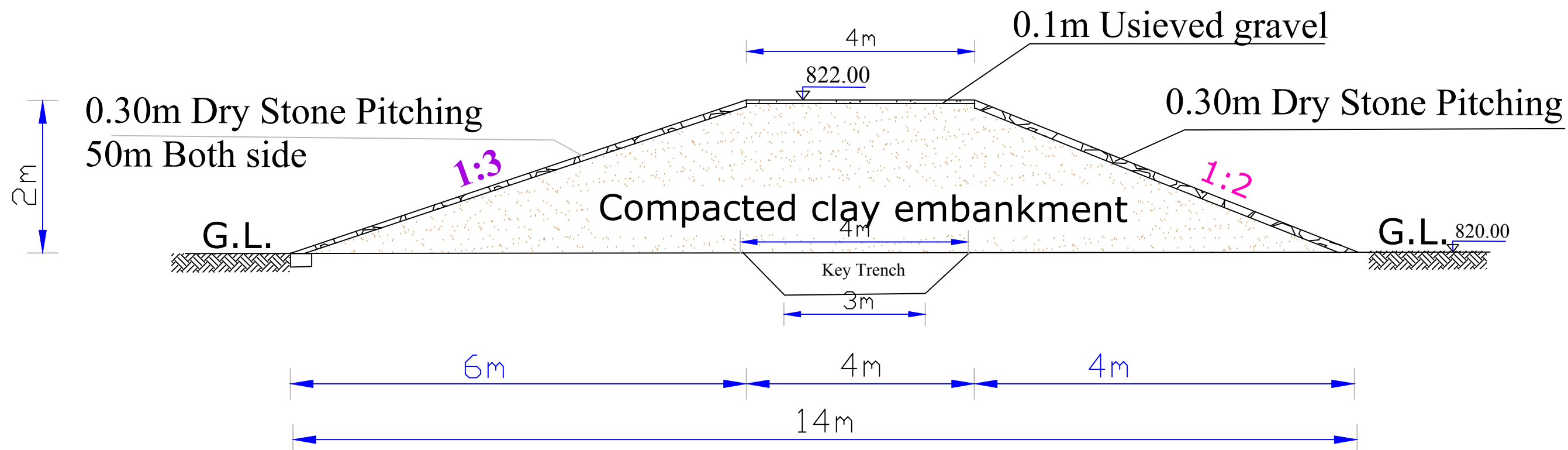


Downstream

<b>CLIENT</b>  <b>Practical ACTION</b>	<small>Consultancy Service to Identify, Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation) Wadi El Ku in El Fasher Locality -North Darfur State</small> <b>CONSULTANT</b>  <b>DAMS ENGINEERING ENTERPRISES</b> <small>Mob. ,00249122606797 ,00249912319503 e-mail : dams.dee2020@gmail.com ,hashimna59@gmail.com Arkawet-48Africa Street-Building258Khartoum,SUDAN</small>	<b>REV.</b>	<b>DESCRIPTION</b>	<b>DATE</b>	<b>SIGN.</b>	<b>DRAWING NAME:</b> Plan of saturated area and irrigation outlet locations			
						DESIGNED: Dr.Eng. HASHIM M. HAMID	DRAWN: MSc.Eng. Tasnim H .Mohamed	Azagarfa Rehabilitation Dam	
					CHECKED: Prof.Eng. SIDDIG E. AHMED	SURVEYED Eng .Ahmed M .Dayer	CONTRACT No	DATE: December 2021	DRAWING NO:

# Cross section F-F at Ch 0+205 .of the embankment

## At Second Breach



CLIENT



**Practical ACTION**

Consultancy Service to Identify ,Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation )Wadi El Ku in El Fasher Locality -North Darfur State

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REV.	DESCRIPTION	DATE	SIGN.

DRAWING NAME: Plan of saturated area and irrigation outlet locations

DESIGNED:  
Dr.Eng. HASHIM M. HAMID

DRAWN:  
MSc.Eng .Tasnim H .Mohamed

Azagarfa Rehabilitation Dam

SCALE:

CHECKED:  
Prof.Eng. SIDDIG E. AHMED

SURVEYED  
Eng .Ahmed M .Dayer

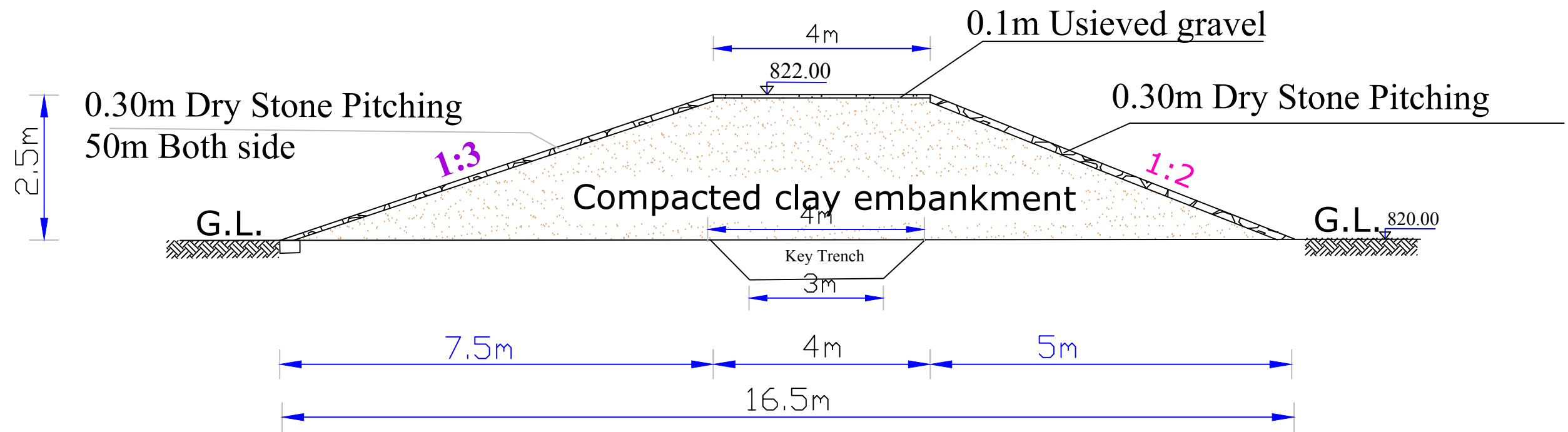
CONTRACT No

DATE:  
December 2021

DRAWING NO:

**9**

# Cross section E-E at Ch 0+70 .of the embankment At First Breach



CLIENT



**Practical ACTION**

Consultancy Service to Identify ,Study and Design Potential Water Harvesting Interventions (Dam Rehabilitation)Wadi El Ku in El Fasher Locality -North Darfur State

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REV.	DESCRIPTION	DATE	SIGN.

DRAWING NAME: **Plan of saturated area and irrigation outlet locations**

DESIGNED:  
Dr.Eng. HASHIM M. HAMID

DRAWN:  
MSc.Eng .Tasnim H .Mohamed

Azagarfa Rehabilitation Dam

SCALE:

CHECKED:  
Prof.Eng. SIDDIG E. AHMED

SURVEYED  
Eng .Ahmed M .Dayer

CONTRACT No

DATE:

DRAWING NO:

December 2021

**10**